

TRR Guest Scientist Lecture / Seminar

Date/Time: 22.07.2015 / 4pm

Location: UPB, P8.4.9

Dr. Nitipat Pholchai

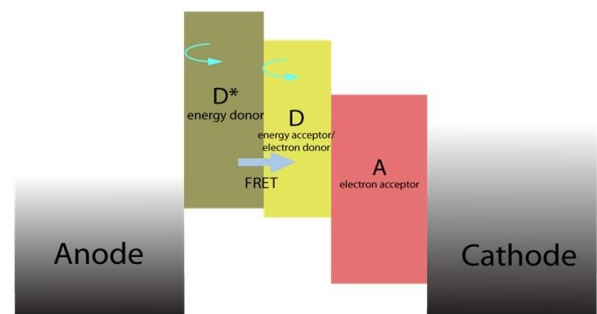
King Mongkuts's University of Technology North Bangkok
Department of Industrial Physics and Medical
Instruments



Energy Transfer for improved Exciton Harvesting in organic Solar Cells

Abstract:

Exciton-based organic solar cell has several fundamental advantages over its conventional inorganic counterpart including stronger optical absorption. However, the exciton diffusion length of most conjugated polymers which range typically between 3 - 10 nm is still much shorter than optical absorption length of around 100 nm at the optimal wavelength of highly absorptive organic materials. This poses limit on the cell thickness over which photo-generated excitons can be efficiently dissociated into current. This work proposes an adapted scheme which uses resonance energy transfer mechanism to enhance exciton flux at the exciton dissociating interface while increasing an overall thickness of composite absorption layer. The increase in exciton extraction efficiency is investigated by a model simulation.



Contact:

Prof. Dr. Thomas Zentgraf
Thomas.Zentgraf@upb.de